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09/173,090	10/15/1998	TIMOTHY ROY BLOCK	RO998-088	1258

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STEVEN W. ROTH
IBM CORPORATION
3605 HIGHWAY 52 NORTH
DEPARTMENT 917
ROCHESTER, MN 55901-7829

EXAMINER
PEZZLO, JOHN

ART UNIT	PAPER NUMBER
2662	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/173,090	Block et al.
Examiner	**Art Unit**
John Pezzlo	2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 30 Oct 2000

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-63 is/are pending in the applica

4a) Of the above, claim(s) _____ is/are withdrawn from considera

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-63 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirem

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 3

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

19) ☐ Notice of Informal Patent Application (PTO-152)

20) ☐ Other:

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-63 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-56 of U.S. Patent No. 6,192,417. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following:

1. The application is directed to a cluster which utilizes a cluster server, cluster message server, and a cluster destination address table for routing messages between nodes in the cluster.

2. The patent is directed to routing messages within a cluster using point-to-point and point-to-multipoint (multicasting) techniques.

3. The patent does not disclose expressly the use of a CDAT and network message server in the claims.

4. At the time of the invention, it would have been obvious to a person of ordinary skill in the art that the patent, which discloses the use of a network message server in the specification and the use of a map which is similar to the CDAT of the application, and the application are directed to variations of the same invention.

5. The suggestion/motivation to link the patent and the application is they are both directed to messaging in a cluster system which both utilize the same concepts and methods for carrying out the invention. Both utilize a network message server and a routing table to send messages to the cluster nodes. Both utilize the same protocol, UDP/IP, to sends the messages.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

I. Group A (claims 1-6 and 37-44), Group B (claims 7-13 and 45-53), Group C (claims 14-21 and 54-63) and Group D (claims 22-29 and 31-35) are rejected under 35 U.S.C. 102(b) as being anticipated by Attanasio et al. (US 5,371,852) hereinafter Attanasio.

Attanasio discloses a method and apparatus for marking a cluster of computers appear as a single host on a network.

Detail claim analysis:

Group A

1. Claim 1 - *An apparatus comprising:*

With respect to - *at least one processor;*

Attanasio discloses a processor, refer to column 7 lines 3 to 13.

With respect to - *a memory coupled to at least one processor;*

Attanasio discloses a memory, refer to column 7 lines 3 to 13.

With respect to - *a cluster servicer residing in said memory, said cluster servicer facilitating cluster messaging with at least one other computer without requiring an intervening dedicated local area network to said at least one other computer.*

Attanasio discloses a cluster server (gateway) which facilitates messaging between nodes in the cluster, refer to Figure 2 and column 6 lines 19 to 67 and column 7 lines 1 to 57.

2. With respect to claim 2 - *The apparatus of claim 1 further comprising a network message servicer residing in said memory, said network message servicer routing at least one cluster message from said cluster servicer to said at least one other computer.*

Attanasio discloses a network message server (message switch and router) which routes incoming/outgoing and internal messages within the cluster and to hosts outside the cluster, refer to Figures 4 and 5 and column 10 lines 62 to 67 and column 11 lines 45.

3. Claim 3 - *The apparatus of claim 2 wherein said network message servicer comprises:*

With respect to - *a User Datagram Protocol, said User Datagram Protocol formatting said at least one cluster message to be sent to said at least one other computer;*

Attanasio discloses the use of UDP for configuring cluster messages, refer to Figures 3D and 5 and 7 and column 8 lines 40 to 60 and column 9 lines 45 to 65 and column 17 lines 19 to 40.

With respect to - *an Internet Protocol, said Internet Protocol routing said at least one formatted cluster message to said at least one other computer without requiring an intervening dedicated local area network to said at least one other computer.*

Attanasio discloses the use of IP for configuring cluster messages, refer to Figures 3A, 3B, and 3C and column 8 lines 15 to 25 and column 11 lines 20 to 45.

4. With respect to claim 4 - *The apparatus of claim 2 wherein said cluster servicer includes a cluster destination address table, said cluster destination address table comprising at least one network address for said at least one other computer, and wherein said cluster servicer retrieves said at least one network address for said at least one other computer from said cluster destination address table to facilitate cluster messaging with said at least one other computer without requiring an intervening dedicated local area network to said at least one other computer.*

Attanasio discloses the use of a CDAT (message switch table) for use by the cluster server to route messages to other nodes in the cluster, refer to Figures 4 and 5 and column 10 lines 60 to 67 and column 11 lines 1 to 60.

5. With respect to claim 5 - *The apparatus of claim 4 wherein said cluster destination address table further comprises cluster status information for said at least one other computer.*

Attanasio discloses that the CDAT contains the function (status) being run on the cluster node, refer to Figures 4 and 5 and column 10 lines 60 to 67 and column 11 lines 1 to 60.

6. With respect to claim 6 - *The apparatus of claim 4 wherein said cluster destination address table further comprises adapter information for said at least one other computer.*

Attanasio discloses that the CDAT includes the port number of the cluster node to route the message, refer to Figures 4 and 5 and column 10 lines 60 to 67 and columns 11-13 and column 14 lines 1 to 20.

7. Claim 37 - *A program product comprising:*

With respect to - *(A) a cluster servicer, said cluster servicer facilitating cluster messaging with at least one other computer without requiring an intervening dedicated local area network to said at least one other computer; and*

Attanasio discloses a cluster server (gateway) which facilitates messaging between nodes in the cluster, refer to Figure 2 and column 6 lines 19 to 67 and column 7 lines 1 to 57.

With respect to - *(B) signal bearing media bearing said cluster servicer.*

Attanasio discloses a signal bearing media connected to the cluster server, refer to Figure 2 and column 6 lines 19 to 67 and column 7 lines 1 to 55.

8. With respect to claim 38 - *The program product of claim 37 wherein said signal bearing media comprises transmission media.*

Attanasio discloses a transmission media connected to the cluster server, refer to Figure 2 and column 6 lines 19 to 67 and column 7 lines 1 to 55.

9. With respect to claim 39 - *The program product of claim 37 wherein said signal bearing media comprises recordable media.*

Attanasio discloses that the program product comprises recordable media such as a program or operating system downloaded to the computer via a disk, refer to column 7 lines 1 to 15 and column 11 lines 40 to 65.

10. With respect to claim 40 - *The program product of claim 37 further comprising a network message servicer, said network message servicer routing at least one cluster message from said cluster servicer to said at least one other computer.*

Attanasio discloses a network message server (message switch and router) which routes incoming/outgoing and internal messages within the cluster and to hosts outside the cluster, refer to Figures 4 and 5 and column 10 lines 62 to 67 and column 11 lines 45.

11. Claim 41 - *The program product of claim 40 wherein said network message servicer comprises:*

With respect to - *a User Datagram Protocol, said User Datagram Protocol formatting said at least one cluster message to be sent to said at least one other computer;*

Attanasio discloses the use of UDP for configuring cluster messages, refer to Figures 3D and 5 and 7 and column 8 lines 40 to 60 and column 9 lines 45 to 65 and column 17 lines 19 to 40.

With respect to - *an Internet Protocol, said Internet Protocol routing said at least one formatted cluster message to said at least one other computer without requiring an intervening dedicated local area network to said at least one other computer.*

Attanasio discloses the use of IP for configuring cluster messages, refer to Figures 3A, 3B, and 3C and column 8 lines 15 to 25 and column 11 lines 20 to 45.

12. With respect to claim 42 - *The program product of claim 40 wherein said cluster servicer includes a cluster destination address table, said cluster destination address table comprising at least one network address for said at least one other computer, and wherein said cluster servicer retrieves said at least one network address for said at least one other computer from said cluster destination address table to facilitate cluster messaging with said at least one other computer without requiring an intervening dedicated local area network to said at least one other computer.*

Attanasio discloses the use of a CDAT (message switch table) for use by the cluster server to route messages to other nodes in the cluster, refer to Figures 4 and 5 and column 10 lines 60 to 67 and column 11 lines 1 to 60.

13. With respect to claim 43 - *The program product of claim 42 wherein said cluster destination address table further comprises cluster status information for said at least one other computer.*

Attanasio discloses that the CDAT contains the function (status) being run on the cluster node, refer to Figures 4 and 5 and column 10 lines 60 to 67 and column 11 lines 1 to 60.

14. With respect to claim 44 - *The program product of claim 42 wherein said cluster destination address table further comprises adapter information for said at least one other computer.*

Attanasio discloses that the CDAT includes the port number of the cluster node to route the message, refer to Figures 4 and 5 and column 10 lines 60 to 67 and columns 11-13 and column 14 lines 1 to 20.

Group B

15. Claim 7 - *An apparatus comprising:*

With respect to - *at least one processor;*

Attanasio discloses a processor, refer to column 7 lines 3 to 13.

With respect to - *a memory coupled to at least one processor;*

Attanasio discloses a memory, refer to column 7 lines 3 to 13.

With respect to - *a network message servicer residing in said memory; and*

Attanasio discloses a network message server (message switch and router) which routes incoming/outgoing and internal messages within the cluster and to hosts outside the cluster, refer to Figures 4 and 5 and column 10 lines 62 to 67 and column 11 lines 45.

With respect to - *a cluster servicer residing in said memory, said cluster servicer including a cluster destination address table, said cluster destination address table including at least one address for at least one other apparatus networked to said apparatus, wherein a message to one of said at least one other apparatus can be sent by said cluster servicer retrieving said at least one address for said at least one other apparatus from said cluster destination address table and passing said retrieved address and said message to said network servicer, wherein said network servicer routes said message to said at least one other apparatus.*

Attanasio discloses a network message server (message switch and router) which routes incoming/outgoing and internal messages within the cluster and to hosts outside the cluster, refer to Figures 4 and 5 and column 10 lines 62 to 67 and column 11 lines 45. Attanasio discloses a cluster server (gateway) which facilitates messaging between nodes in the cluster, refer to Figure 2 and column 6 lines 19 to 67 and column 7 lines 1 to 57. Attanasio discloses the use of a CDAT (message switch table) for use by the cluster server to route messages to other nodes in the cluster, refer to Figures 4 and 5 and column 10 lines 60 to 67 and column 11 lines 1 to 60.

16. With respect to claim 8 - *The apparatus of claim 7 wherein said cluster destination address table further comprises adapter information for each of said at least one address for at least one other apparatus networked to said apparatus.*

Attanasio discloses that the CDAT includes the port number of the cluster node to route the message, refer to Figures 4 and 5 and column 10 lines 60 to 67 and columns 11-13 and column 14 lines 1 to 20.

17. With respect to claim 9 - *The apparatus of claim 7 wherein said cluster destination address table further comprises status information for each of said at least one address for at least one other apparatus networked to said apparatus.*

Attanasio discloses that the CDAT contains the function (status) being run on the cluster node, refer to Figures 4 and 5 and column 10 lines 60 to 67 and column 11 lines 1 to 60.

18. Claim 10 - *The apparatus of claim 7 operating as a computer cluster, said computer cluster comprising at least one other apparatus networked to said apparatus, wherein each apparatus in said computer cluster comprises:*

With respect to - *at least one processor;*

Attanasio discloses a processor, refer to column 7 lines 3 to 13.

With respect to - *a memory coupled to at least one processor;*

Attanasio discloses a memory, refer to column 7 lines 3 to 13.

With respect to - *a User Datagram Protocol residing in said memory, said User Datagram Protocol formatting at least one packet to be sent between apparatuses in said computer cluster;*

Attanasio discloses the use of UDP for configuring cluster messages, refer to Figures 3D and 5 and 7 and column 8 lines 40 to 60 and column 9 lines 45 to 65 and column 17 lines 19 to 40.

With respect to - *an Internet Protocol residing in said memory, said Internet Protocol routing said at least one packet between apparatuses in said computer cluster; and*

Attanasio discloses the use of IP for configuring cluster messages, refer to Figures 3A, 3B, and 3C and column 8 lines 15 to 25 and column 11 lines 20 to 45.

With respect to - *a cluster servicer residing in said memory, said cluster servicer including a cluster destination address table, said cluster destination address table including at least one Internet address for said each apparatus in said computer cluster, wherein a message can be sent to one of said each apparatus in said computer cluster by said cluster servicer determining one of said at least one Internet address of said one of said each apparatus in said computer cluster from said cluster destination address table and passing said determined Internet address and said message to said User Datagram Protocol, wherein said User Datagram Protocol formats said determined Internet address and said message into at least one packet and passes said at least one packet to said Internet Protocol, wherein said Internet*

Protocol routes said at least one packet to said one of said each apparatus in said computer cluster.

Attanasio discloses a cluster server (gateway) which facilitates messaging between nodes in the cluster, refer to Figure 2 and column 6 lines 19 to 67 and column 7 lines 1 to 57. Attanasio discloses the use of a CDAT (message switch table) for use by the cluster server to route messages to other nodes in the cluster, refer to Figures 4 and 5 and column 10 lines 60 to 67 and column 11 lines 1 to 60. Attanasio discloses the use of UDP for configuring cluster messages, refer to Figures 3D and 5 and 7 and column 8 lines 40 to 60 and column 9 lines 45 to 65 and column 17 lines 19 to 40. Attanasio discloses the use of IP for configuring cluster messages, refer to Figures 3A, 3B, and 3C and column 8 lines 15 to 25 and column 11 lines 20 to 45.

19. With respect to claim 11 - *The apparatus of claim 7 wherein said cluster destination address table includes at least one Internet address for said at least one other apparatus networked to said apparatus, and wherein a message to one of said at least one other apparatus can be sent by said cluster servicer retrieving said at least one Internet address for said at least one other apparatus from said cluster destination address table and passing said retrieved Internet address and said message to said network servicer.*

Attanasio discloses the use of a CDAT (message switch table) for use by the cluster server to route messages to other nodes in the cluster wherein the message switch table is

linked to a routing function cluster connection table containing addresses of the other cluster nodes, refer to Figures 4 and 5 and 10 and column 10 lines 60 to 67 and column 11 lines 1 to 60.

20. Claim 12 - *The apparatus of claim 11 wherein said network message servicer comprises:*

With respect to - *a User Datagram Protocol which formats at least one packet from said message and said retrieved Internet address; and*

Attanasio discloses the use of UDP for configuring cluster messages, refer to Figures 3D and 5 and 7 and column 8 lines 40 to 60 and column 9 lines 45 to 65 and column 17 lines 19 to 40.

With respect to - *an Internet Protocol, said Internet protocol routing said at least one packet to said one of said at least one other apparatus networked to said apparatus.*

Attanasio discloses the use of IP for configuring cluster messages, refer to Figures 3A, 3B, and 3C and column 8 lines 15 to 25 and column 11 lines 20 to 45.

21. With respect to claim 13 - *The apparatus of claim 12 wherein said at least one other apparatus networked to said apparatus is networked through a plurality of routers, and wherein said Internet Protocol comprises specific routing directions indicating which router of said plurality of routers should be used for routing said at least one packet to said at least one other apparatus.*

Attanasio discloses routing incoming messages from hosts to the cluster and routing messages from the nodes in the cluster to hosts outside the cluster, wherein the messages transverse through routers across the network using the IP protocol, which is a hop-to-hop protocol wherein the destination address (stored in a routing table) is the next hop in the route to reach the destination. Attanasio discloses that the nodes utilize the IP address of the cluster server gateway as the source address and indicate the next router as the destination address which is part of the message switch routing instructions, refer to Figures 3, 4, 5, and 10 and column 7 lines 55 to 67 and columns 8-11 and column 15 lines 25 to 67 and column 16 lines 1 to 65.

22. Claim 45 - *A program product comprising:*

With respect to - *(A) a network message servicer;*

Attanasio discloses a network message server (message switch and router) which routes incoming/outgoing and internal messages within the cluster and to hosts outside the cluster, refer to Figures 4 and 5 and column 10 lines 62 to 67 and column 11 lines 45.

With respect to - *(B) a cluster servicer, said cluster servicer including a cluster destination address table, said cluster destination address table including at least one address for each of a plurality of apparatuses in a computer cluster, wherein a message to one of said plurality of apparatuses can be sent by said cluster servicer retrieving one of said at least one address for said one of said plurality of apparatuses from said cluster destination address table*

and passing said retrieved address and said message to said network servicer, wherein said network servicer routes said message to said one of said plurality of apparatuses; and

Attanasio discloses a network message server (message switch and router) which routes incoming/outgoing and internal messages within the cluster and to hosts outside the cluster, refer to Figures 4 and 5 and column 10 lines 62 to 67 and column 11 lines 45. Attanasio discloses a cluster server (gateway) which facilitates messaging between nodes in the cluster, refer to Figure 2 and column 6 lines 19 to 67 and column 7 lines 1 to 57. Attanasio discloses the use of a CDAT (message switch table) for use by the cluster server to route messages to other nodes in the cluster, refer to Figures 4 and 5 and column 10 lines 60 to 67 and column 11 lines 1 to 60.

With respect to - *(C) signal bearing media bearing said network message servicer and said cluster servicer.*

Attanasio discloses a signal bearing media connected to the cluster server, refer to Figure 2 and column 6 lines 19 to 67 and column 7 lines 1 to 55.

23. With respect to claim 46 - *The program product of claim 45 wherein said signal bearing media comprises transmission media.*

Attanasio discloses a transmission media connected to the cluster server, refer to Figure 2 and column 6 lines 19 to 67 and column 7 lines 1 to 55.

24. With respect to claim 47 - *The program product of claim 45 wherein said signal bearing media comprises recordable media.*

Attanasio discloses that the program product comprises recordable media such as a program or operating system downloaded to the computer via a disk, refer to column 7 lines 1 to 15 and column 11 lines 40 to 65.

25. With respect to claim 48 - *The program product of claim 45 wherein said cluster destination address table further comprises adapter information for said each of said plurality of apparatuses.*

Attanasio discloses that the CDAT includes the port number of the cluster node to route the message, refer to Figures 4 and 5 and column 10 lines 60 to 67 and columns 11-13 and column 14 lines 1 to 20.

26. With respect to claim 49 - *The program product of claim 45 wherein said cluster destination address table further comprises status information for said each of said plurality of apparatuses.*

Attanasio discloses that the CDAT contains the function (status) being run on the cluster node, refer to Figures 4 and 5 and column 10 lines 60 to 67 and column 11 lines 1 to 60.

27. Claim 50 - *The program product of claim 45 comprising:*

With respect to - *a User Datagram Protocol, said User Datagram Protocol formatting at least one packet to be sent between said plurality of apparatuses in said computer cluster;*

Attanasio discloses the use of UDP for configuring cluster messages, refer to Figures 3D and 5 and 7 and column 8 lines 40 to 60 and column 9 lines 45 to 65 and column 17 lines 19 to 40.

With respect to - *an Internet Protocol, said Internet Protocol routing said at least one packet between said plurality of apparatuses in said computer cluster; and*

Attanasio discloses the use of IP for configuring cluster messages, refer to Figures 3A, 3B, and 3C and column 8 lines 15 to 25 and column 11 lines 20 to 45.

With respect to - *a cluster servicer, said cluster servicer including a cluster destination address table, said cluster destination address table including at least one Internet address for each of said plurality of apparatuses in said computer cluster, wherein a message can be sent to one of said plurality of apparatuses in said computer cluster by said cluster servicer determining one of said at least one Internet address for said one of said plurality of apparatuses in said computer cluster from said cluster destination address table and passing said determined Internet address and said message to said User Datagram Protocol, wherein said User Datagram Protocol formats said determined Internet address and said message into at least one packet and passes said at least one packet to said Internet Protocol, wherein said*

Internet Protocol routes said at least one packet to said one of said plurality of apparatuses in said computer cluster.

Attanasio discloses a cluster server (gateway) which facilitates messaging between nodes in the cluster, refer to Figure 2 and column 6 lines 19 to 67 and column 7 lines 1 to 57. Attanasio discloses the use of UDP for configuring cluster messages, refer to Figures 3D and 5 and 7 and column 8 lines 40 to 60 and column 9 lines 45 to 65 and column 17 lines 19 to 40. Attanasio discloses the use of IP for configuring cluster messages, refer to Figures 3A, 3B, and 3C and column 8 lines 15 to 25 and column 11 lines 20 to 45.

28. With respect to claim 51 - *The program product of claim 45 wherein said cluster destination address table includes at least one Internet address for said each of said plurality of apparatuses in said computer cluster, and wherein a message to one of said plurality of apparatuses can be sent by said cluster servicer retrieving one of said at least one Internet address for said one of said plurality of apparatuses from said cluster destination address table and passing said retrieved Internet address and said message to said network servicer.*

Attanasio discloses the use of a CDAT (message switch table) for use by the cluster server to route messages to other nodes in the cluster wherein the message switch table is linked to a routing function cluster connection table containing addresses of the other cluster nodes, refer to Figures 4 and 5 and 10 and column 10 lines 60 to 67 and column 11 lines 1 to 60.

29. Claim 52 - *The program product of claim 51 wherein said network message servicer comprises:*

With respect to - *a User Datagram Protocol which formats at least one packet from said message and said retrieved Internet address; and*

Attanasio discloses the use of UDP for configuring cluster messages, refer to Figures 3D and 5 and 7 and column 8 lines 40 to 60 and column 9 lines 45 to 65 and column 17 lines 19 to 40.

With respect to - *an Internet Protocol, said Internet protocol routing said at least one packet to said one of said plurality of apparatuses networked to said apparatus.*

Attanasio discloses the use of IP for configuring cluster messages, refer to Figures 3A, 3B, and 3C and column 8 lines 15 to 25 and column 11 lines 20 to 45.

30. With respect to claim 53 - *The program product of claim 52 wherein said at least two of said plurality of apparatuses in said computer cluster are networked through a plurality of routers, and wherein said Internet Protocol comprises specific routing directions indicating which router of said plurality of routers should be used for routing said at least one packet between said two of said plurality of apparatuses in said computer cluster networked together through a plurality of routers.*

Attanasio discloses routing incoming messages from hosts to the cluster and routing messages from the nodes in the cluster to hosts outside the cluster, wherein the

messages transverse through routers across the network using the IP protocol, which is a hop-to-hop protocol wherein the destination address (stored in a routing table) is the next hop in the route to reach the destination. Attanasio discloses that the nodes utilize the IP address of the cluster server gateway as the source address and indicate the next router as the destination address which is part of the message switch routing instructions, refer to Figures 3, 4, 5, and 10 and column 7 lines 55 to 67 and columns 8-11 and column 15 lines 25 to 67 and column 16 lines 1 to 65.

Group C

31. Claim 14 - *A cluster of computers, each computer in said cluster of computers comprising:*

With respect to - *at least one processor;*

Attanasio discloses a processor, refer to column 7 lines 3 to 13.

With respect to - *at least one network adapter;*

Attanasio discloses that the CDAT includes the port number of the cluster node to route the message, refer to Figures 4 and 5 and column 10 lines 60 to 67 and columns 11-13 and column 14 lines 1 to 20.

With respect to - *a memory coupled to said at least one processor;*

Attanasio discloses a memory, refer to column 7 lines 3 to 13.

With respect to - *a User Datagram Protocol residing in said memory, said User Datagram Protocol formatting at least one packet to be sent between computers in said cluster of computers;*

Attanasio discloses the use of UDP for configuring cluster messages, refer to Figures 3D and 5 and 7 and column 8 lines 40 to 60 and column 9 lines 45 to 65 and column 17 lines 19 to 40.

With respect to - *an Internet Protocol suite residing in said memory, said Internet Protocol routing said at least one packet between computers in said cluster of computers; and*

Attanasio discloses the use of IP for configuring cluster messages, refer to Figures 3A, 3B, and 3C and column 8 lines 15 to 25 and column 11 lines 20 to 45.

With respect to - *a cluster servicer residing in said memory, said cluster servicer including a cluster destination address table, said cluster destination address table including a cluster destination address table entry for each computer in said cluster of computers, said each cluster destination address table entry comprising:*

Attanasio discloses a cluster server (gateway) which facilitates messaging between nodes in the cluster, refer to Figure 2 and column 6 lines 19 to 67 and column 7 lines 1 to 57. Attanasio discloses the use of a CDAT (message switch table) for use by the cluster server to route messages to other nodes in the cluster, refer to Figures 4 and 5 and column 10 lines 60 to 67 and column 11 lines 1 to 60.

With respect to - *an Internet address for each of said at least one network adapter;*

Attanasio discloses that the CDAT includes the port number of the cluster node to route the message which includes an IP address, refer to Figures 4 and 5 and 10 and column 10 lines 60 to 67 and columns 11-13 and column 14 lines 1 to 20.

With respect to - *status information for each of said at least one network adapter; and*

Attanasio discloses that the CDAT contains the function (status) being run on the cluster node, refer to Figures 4 and 5 and column 10 lines 60 to 67 and column 11 lines 1 to 60.

With respect to - *adapter information for each of said at least one network adapter;*

Attanasio discloses that the CDAT includes the port number of the cluster node to route the message, refer to Figures 4 and 5 and column 10 lines 60 to 67 and columns 11-13 and column 14 lines 1 to 20.

With respect to - *wherein said cluster servicer sends a cluster message to a destination computer in said cluster of computers by determining an Internet address for said destination computer from said cluster destination address table entry for said destination computer and passing said determined Internet address of said destination computer and said cluster message to said User Datagram Protocol, wherein said User Datagram Protocol formats*

said determined Internet address and said cluster message into a packet and passes said packet to said Internet Protocol, wherein said Internet Protocol routes said packet to said destination computer.

Attanasio discloses routing incoming messages from hosts to the cluster and routing messages from the nodes in the cluster to hosts outside the cluster, wherein the messages transverse through routers across the network using the IP protocol, which is a hop-to-hop protocol wherein the destination address (stored in a routing table) is the next hop in the route to reach the destination. Attanasio discloses that the nodes utilize the IP address of the cluster server gateway as the source address and indicate the next router as the destination address which is part of the message switch routing instructions, refer to Figures 3, 4, 5, and 10 and column 7 lines 55 to 67 and columns 8-11 and column 15 lines 25 to 67 and column 16 lines 1 to 65.

32. With respect to claim 15 - *The cluster of computers of claim 14 wherein said Internet Protocol on said each computer in said cluster of computers includes a routing table, said routing table including at least one routing table entry, said at least one routing table entry including a subnet address and corresponding routing direction for said subnet address, and wherein at least one additional routing table entry exists in said routing table for each computer in said cluster of computers that is attached to a plurality of routers, said at least one additional routing table entry including a subnet address and corresponding routing direction for said*

subnet address that specifies to which router of said plurality of routers to route said at least one packet.

Attanasio discloses the use of the IP protocol and the use of subnet addresses for each node in the cluster and the routing instructions, refer to Figures 4 and 5 and column 10 lines 60 to 68 and columns 11 to 15 and column 16 lines 1 to 55.

33. With respect to claim 16 - *The cluster of computers of claim 14 wherein said cluster servicer in each computer in said cluster of computers can employ said cluster destination address table, said User Datagram Protocol, and said Internet Protocol to route all cluster messages necessary to maintain said cluster of computers.*

Attanasio discloses a cluster server (gateway) which facilitates messaging between nodes in the cluster, refer to Figure 2 and column 6 lines 19 to 67 and column 7 lines 1 to 57. Attanasio discloses the use of a CDAT (message switch table) for use by the cluster server to route messages to other nodes in the cluster, refer to Figures 4 and 5 and column 10 lines 60 to 67 and column 11 lines 1 to 60. Attanasio discloses the use of UDP for configuring cluster messages, refer to Figures 3D and 5 and 7 and column 8 lines 40 to 60 and column 9 lines 45 to 65 and column 17 lines 19 to 40. Attanasio discloses the use of IP for configuring cluster messages, refer to Figures 3A, 3B, and 3C and column 8 lines 15 to 25 and column 11 lines 20 to 45.

34. With respect to claim 17 - *The cluster of computers of claim 14 wherein said cluster servicer can determine from said status information in said cluster destination address table whether a network adapter for one of said each computer in said cluster of computers is reachable or unreachable.*

Attanasio discloses that the port number status information in the CDAT determines if the node is part of the cluster which is reachable via the local gateway server or needs to be directed another gateway server, refer to Figures 4 and 5 and column 13 lines 10 to 55 and column 16 lines 15 to 30 and column 19 lines 60 to 67 and column 20 lines 1 to 20.

35. With respect to claim 18 - *The cluster of computers of claim 14 wherein said cluster servicer can determine from said adapter information in said cluster destination address table how to assign cluster responsibilities to said each computer in said cluster of computers.*

Attanasio discloses that the cluster server utilizes the function information in the switching and routing table to assign cluster responsibilities to each computer, refer to Figures 4 and 7 and column 10 lines 60 to 67 and column 11 lines 1 to 45 and column 17 lines 17 to 67 and column 18 lines 1 to 50.

36. With respect to claim 19 - *The cluster of computers of claim 14 wherein said cluster servicer can determine from said adapter information in said cluster destination address table*

how to size cluster messages to each network adapter on said each computer in said cluster of computers.

Attanasio discloses that the adaptor (port) information determines the cluster node wherein the message will be routed and the function information determines the size of the message, refer to Figures 4, 7, and 10 and column 10 lines 62 to 67 and column 11 lines 1 to 45 and column 17 lines 18 to 40 and column 18 lines 45 to 67 and column 19 lines 1 to 61.

37. With respect to claim 20 - *The cluster of computers of claim 14 wherein at least one computer in said cluster of computers has a plurality of network adapters, and wherein each cluster destination address table entry corresponding to said at least one computer in said cluster of computers with a plurality of network adapters includes an Internet address for each of said plurality of network adapters, said plurality of Internet addresses ordered preferentially in said cluster destination address table entry, and wherein said cluster servicer can send a cluster message to a destination computer with a plurality of adapters by determining a primary Internet address for said destination computer with a plurality of adapters from said cluster destination address table entry corresponding to said destination computer with a plurality of network adapters.*

Attanasio discloses that the network comprises a gateway which interconnects with multiple networks, wherein each network is associated with a unique IP address, refer to Figures 1B and 1C and column 5 lines 12 to 55. Attanasio discloses that each

node is designated a primary or secondary node with respect to a function that needs to be performed and if the primary fails the secondary node (backup) will take over without loss of service, refer to column 19 lines 60 to 67 and column 20 lines 1 to 20.

38. With respect to claim 21 - *The cluster of computers of claim 20 wherein said cluster servicer can send a cluster message to a destination computer with a plurality of adapters by determining an alternate Internet address for said destination computer with a plurality of adapters from said cluster destination address table corresponding to said destination computer with a plurality of adapters, when a timely response from said destination computer with a plurality of adapters is not received after sending a cluster message addressed to said primary Internet address for said destination computer with a plurality of adapters.*

Attanasio discloses primary and secondary nodes wherein the secondary node takes over for the primary and the user doesn't realize a loss of service because the user addresses messages to the gateway and the gateway routes the messages to the node which is currently handling the function or service, refer to column 19 lines 60 to 67 and column 20 lines 1 to 20.

39. Claim 54 - *A program product comprising:*

With respect to - *a User Datagram Protocol, said User Datagram Protocol formatting at least or packet to be sent between computers in a cluster of computers;*

Attanasio discloses the use of UDP for configuring cluster messages, refer to Figures 3D and 5 and 7 and column 8 lines 40 to 60 and column 9 lines 45 to 65 and column 17 lines 19 to 40.

With respect to - *an Internet Protocol suite, said Internet Protocol routing said at least one pack between computers in said cluster of computers; and*

Attanasio discloses the use of IP for configuring cluster messages, refer to Figures 3A, 3B, and 3C and column 8 lines 15 to 25 and column 11 lines 20 to 45.

With respect to - *a cluster servicer, said cluster servicer including a cluster destination address table, said cluster destination address table including a cluster destination address tab entry for each computer in said cluster of computers, said each cluster destination address table entry comprising:*

Attanasio discloses a cluster server (gateway) which facilitates messaging between nodes in the cluster, refer to Figure 2 and column 6 lines 19 to 67 and column 7 lines 1 to 57. Attanasio discloses the use of a CDAT (message switch table) for use by the cluster server to route messages to other nodes in the cluster, refer to Figures 4 and 5 and column 10 lines 60 to 67 and column 11 lines 1 to 60.

With respect to - *an Internet address for each network adapter;*

Attanasio discloses that the CDAT includes the port number of the cluster node to route the message which includes an IP address, refer to Figures 4 and 5 and 10 and column 10 lines 60 to 67 and columns 11-13 and column 14 lines 1 to 20.

With respect to - *status information for said each network adapter; and*

Attanasio discloses that the CDAT contains the function (status) being run on the cluster node, refer to Figures 4 and 5 and column 10 lines 60 to 67 and column 11 lines 1 to 60.

With respect to - *adapter information for said each network adapter;*

Attanasio discloses that the CDAT includes the port number of the cluster node to route the message, refer to Figures 4 and 5 and column 10 lines 60 to 67 and columns 11-13 and column 14 lines 1 to 20.

With respect to - *wherein said cluster servicer sends a cluster message to a destination computer in said cluster of computers by determining an Internet address for said destination computer from said cluster destination address table entry for said destination computer and pass said determined Internet address of said destination computer and said cluster message said User Datagram Protocol, wherein said User Datagram Protocol formats said determined Internet address and said cluster message into a packet and passes said packet to said Internet Protocol, wherein said Internet Protocol routes said packet to said destination computer.*

Attanasio discloses routing incoming messages from hosts to the cluster and routing messages from the nodes in the cluster to hosts outside the cluster, wherein the messages transverse through routers across the network using the IP protocol, which is a hop-to-hop protocol wherein the destination address (stored in a routing table) is the next hop in the

route to reach the destination. Attanasio discloses that the nodes utilize the IP address of the cluster server gateway as the source address and indicate the next router as the destination address which is part of the message switch routing instructions, refer to Figures 3, 4, 5, and 10 and column 7 lines 55 to 67 and columns 8-11 and column 15 lines 25 to 67 and column 16 lines 1 to 65.

40. With respect to claim 55 - *The program product of claim 54 wherein said signal bearing media comprises transmission media.*

Attanasio discloses a transmission media connected to the cluster server, refer to Figure 2 and column 6 lines 19 to 67 and column 7 lines 1 to 55.

41. With respect to claim 56 - *The program product of claim 54 wherein said signal bearing media comprises recordable media.*

Attanasio discloses that the program product comprises recordable media such as a program or operating system downloaded to the computer via a disk, refer to column 7 lines 1 to 15 and column 11 lines 40 to 65.

42. With respect to claim 57 - *The program product of claim 54 wherein said Internet Protocol includes a routing table, said routing table including at least one routing table entry, said at least one routing table entry including a subnet address and corresponding routing*

direction for said subnet address, and wherein at least one additional routing table entry exists in said routing table for each computer in said cluster of computers that is attached to a plurality of routers, said at least one additional routing table entry including a subnet address and corresponding routing direction for said subnet address that specifies to which router of said plurality of routers to route said at least one packet.

Attanasio discloses the use of the IP protocol and the use of subnet addresses for each node in the cluster and the routing instructions, refer to Figures 4 and 5 and column 10 lines 60 to 68 and columns 11 to 15 and column 16 lines 1 to 55.

43. With respect to claim 58 - *The program product of claim 54 wherein said cluster servicer can employ said cluster destination address table, said User Datagram Protocol, and said Internet Protocol to route all cluster messages necessary to maintain said cluster of computers.*

Attanasio discloses the use of the CDAT utilizing UDP and IP protocols to route messages to maintain the cluster, refer to Figures 2, 3, 4, and 5 and column 2 lines 1 to 11 and column 5 lines 10 to 30 and column 7 lines 14 to 37 and column 16 lines 15 to 30 and column 19 lines 60 to 67 and column 20 lines 1 to 20.

44. With respect to claim 59 - *The program product of claim 54 wherein said cluster servicer can determine from said status information in said cluster destination address table*

whether a network adapter for one of said each computer in said cluster of computers is reachable or unreachable.

Attanasio discloses that the port number status information in the CDAT determines if the node is part of the cluster which is reachable via the local gateway server or needs to be directed another gateway server, refer to Figures 4 and 5 and column 13 lines 10 to 55 and column 16 lines 15 to 30 and column 19 lines 60 to 67 and column 20 lines 1 to 20.

45. With respect to claim 60 - *The program product of claim 54 wherein said cluster servicer can determine from said adapter information in said cluster destination address table how to assign cluster responsibilities to said each computer in said cluster of computers.*

Attanasio discloses that the cluster server utilizes the function information in the switching and routing table to assign cluster responsibilities to each computer, refer to Figures 4 and 7 and column 10 lines 60 to 67 and column 11 lines 1 to 45 and column 17 lines 17 to 67 and column 18 lines 1 to 50.

46. With respect to claim 61 - *The program product of claim 54 wherein said cluster servicer can determine from said adapter information in said cluster destination address table how to size cluster messages to each network adapter on said each computer in said cluster of computers.*

Attanasio discloses that the adaptor (port) information determines the cluster node wherein the message will be routed and the function information determines the size of the message, refer to Figures 4, 7, and 10 and column 10 lines 62 to 67 and column 11 lines 1 to 45 and column 17 lines 18 to 40 and column 18 lines 45 to 67 and column 19 lines 1 to 61.

47. With respect to claim 62 - *The program product of claim 54 wherein at least one computer in said cluster of computers has a plurality of network adapters, and wherein each cluster destination address table entry corresponding to said at least one computer in said cluster of computers with a plurality of network adapters includes an Internet address for each of said plurality of network adapters, said plurality of Internet addresses ordered preferentially in said cluster destination address table entry, and wherein said cluster servicer can send a cluster message to a destination computer with a plurality of adapters by determining a primary Internet address for said destination computer with a plurality of adapters from said cluster destination address table entry corresponding to said destination computer with a plurality of network adapters.*

Attanasio discloses that the network comprises a gateway which interconnects with multiple networks, wherein each network is associated with a unique IP address, refer to Figures 1B and 1C and column 5 lines 12 to 55. Attanasio discloses that each node is designated a primary or secondary node with respect to a function that needs to be

performed and if the primary fails the secondary node (backup) will take over without loss of service, refer to column 19 lines 60 to 67 and column 20 lines 1 to 20.

48. With respect to claim 63 - *The program product of claim 62 wherein said cluster servicer can send a cluster message to a destination computer with a plurality of adapters by determining an alternate Internet address for said destination computer with a plurality of adapters from said cluster destination address table corresponding to said destination computer with a plurality of adapters, when a timely response from said destination computer with a plurality of adapters is not received after sending a cluster message addressed to said primary Internet address for said destination computer with a plurality of adapters.*

Attanasio discloses primary and secondary nodes wherein the secondary node takes over for the primary and the user doesn't realize a loss of service because the user addresses messages to the gateway and the gateway routes the messages to the node which is currently handling the function or service, refer to column 19 lines 60 to 67 and column 20 lines 1 to 20.

Group D

49. Claim 22 - *A method comprising the steps of:*

With respect to - *creating network address information for each computer in a cluster configuration;*

Attanasio discloses creating a message switch and routing function table in a cluster configuration, refer to Figures 2 and 4 and 7 and column 10 lines 60 to 67 and column 11 lines 1 to 45.

With respect to - *storing said network address information on said each computer in said cluster configuration; and*

Attanasio discloses storing network address information in the table for each computer, refer to Figures 2, 4, and 7 and column 15 lines 25 to 67 and column 16 lines 1 to 35.

With respect to - *employing said network address information in conjunction with a network message servicer for cluster communications in said cluster configuration beyond a single local area network.*

Attanasio discloses that the address information is utilized by a network message server to route data across a network, refer to Figure 3C and 4 and column 9 lines 30 to 67 and column 10 and column 11 lines 1 to 45.

50. Claim 23 - The method of claim 22 further comprising the steps of:

With respect to - *creating routing information for each computer connected to a plurality of routers in said cluster configuration, said routing information identifying which router of said plurality of routers to employ in communicating between said each computer connected to said plurality of routers in said cluster configuration; and*

Attanasio discloses creating routing information for each computer and identifying the destination for each node, refer to Figures 1B and 1C and 4 and 7 and column 7 lines 55 to 67 and columns 8-10 and column 11 lines 1 to 45 and column 15 lines 25 to 68 and column 16 lines 1 to 30 and column 17 lines 18 to 68 and column 18 lines 1 to 45.

With respect to - *storing said routing information on each said computer connected to said plurality of routers in said cluster configuration.*

Attanasio discloses storing network address information in the table for each computer, refer to Figures 2, 4, and 7 and column 15 lines 25 to 67 and column 16 lines 1 to 35.

51. With respect to claim 24 - *The method of claim 22 wherein the step of creating network address information for said each computer in said cluster configuration comprises the step of creating a cluster destination address table on said each computer in said cluster configuration, wherein the step of creating said cluster destination address table comprises creating a cluster destination address table entry for said each computer in said cluster configuration, said cluster destination address table entry including at least one network address for a computer in said cluster configuration corresponding to said cluster destination address table entry.*

Attanasio discloses creating network address information in a table which comprises a network address for each computer node in the cluster, refer to Figures 4 and 7 and

column 10 lines 60 to 68 and column 11 lines 1 to 45 and column 15 lines 25 to 68 and columns 16 and 17 and column 18 lines 1 to 45.

52. Claim 25 - *The method of claim 24 wherein the step of employing said network address information in conjunction with a network message servicer for cluster communications in said cluster configuration beyond a single local area network comprises the steps of:*

With respect to - *retrieving said at least one network address from at least one cluster destination address table entry corresponding to at least one computer in said cluster configuration;*

Attanasio discloses retrieving addresses from the message switch and routing table which correspond to computer node addresses in the cluster, refer to Figures 4 and 7 and column 10 lines 60 to 68 and column 11 lines 1 to 45 and column 15 lines 25 to 68 and columns 16 and 17 and column 18 lines 1 to 45.

With respect to - *employing said network message servicer to send at least one cluster message to said at least one computer in said cluster configuration by passing said retrieved at least one network address for said at least one computer in said cluster configuration along with said at least one cluster message to a network message servicer, said network message servicer routing said at least one cluster message to said at least one computer in said cluster configuration using said retrieved at least one network address.*

Attanasio discloses a network message server which utilizes the addresses in the table and the routing function instructions to route the data between computer nodes in the cluster, refer to Figures 4 and 5 and 7 and column 10 lines 60 to 68 and columns 11 to 17 and column 18 lines 1 to 45.

53. With respect to claim 26 - *The method of claim 25 wherein the step of employing said network message servicer to send at least one cluster message to said at least one computer in said cluster configuration comprises the step of passing said retrieved at least one network address for said at least one computer in said cluster configuration along with said at least one cluster message to a User Datagram Protocol, said User Datagram Protocol formatting said retrieved at least one network address for said at least one computer in said cluster configuration and said at least one cluster message into at least one packet, said User Datagram Protocol passing said at least one packet to an Internet Protocol, said Internet Protocol routing said at least one packet to said at least one computer in said cluster configuration.*

Attanasio discloses the use of the CDAT utilizing UDP and IP protocols to route messages to maintain the cluster, refer to Figures 2, 3, 4, and 5 and column 2 lines 1 to 11 and column 5 lines 10 to 30 and column 7 lines 14 to 37 and column 16 lines 15 to 30 and column 19 lines 60 to 67 and column 20 lines 1 to 20.

54. With respect to claim 27 - *The method of claim 24 wherein the step of creating a cluster destination address table for said each computer in said cluster configuration comprises the step of creating a cluster destination address table entry for said each computer in said cluster configuration, said cluster destination address table entry including a primary network address and at least one alternate network address for said computer in said cluster configuration corresponding to said cluster destination address table entry.*

Attanasio discloses that the network comprises a gateway which interconnects with multiple networks, wherein each network is associated with a unique IP address, refer to Figures 1B and 1C and column 5 lines 12 to 55. Attanasio discloses that each node is designated a primary or secondary node with respect to a function that needs to be performed and if the primary fails the secondary node (backup) will take over without loss of service, refer to column 19 lines 60 to 67 and column 20 lines 1 to 20.

55. Claim 28 - *The method of claim 27 wherein the step of employing said network address information in conjunction with a network message servicer for cluster communications in said cluster configuration beyond a single local area network comprises the steps of:*

With respect to - *retrieving at least one network address from at least one cluster destination address table entry corresponding to at least one computer in said cluster configuration;*

Attanasio discloses retrieving addresses from the message switch and routing table which correspond to computer node addresses in the cluster, refer to Figures 4 and 7 and column 10 lines 60 to 68 and column 11 lines 1 to 45 and column 15 lines 25 to 68 and columns 16 and 17 and column 18 lines 1 to 45.

With respect to - *employing said network message servicer to send at least one cluster message to said at least one computer in said cluster configuration by passing said primary network address for said at least one computer in said cluster configuration along with said at least one cluster message to a network message servicer, said network message servicer routing said at least one cluster message to said at least one computer in said cluster configuration using said primary network address;*

Attanasio discloses a network message server which utilizes the addresses in the table and the routing function instructions to route the data between computer nodes in the cluster, refer to Figures 4 and 5 and 7 and column 10 lines 60 to 68 and columns 11 to 17 and column 18 lines 1 to 45.

With respect to - *awaiting a reply to said at least one cluster message sent to said at least one computer in said cluster configuration using said primary network address;*

Attanasio discloses that the network comprises a gateway which interconnects with multiple networks, wherein each network is associated with a unique IP address, refer to Figures 1B and 1C and column 5 lines 12 to 55. Attanasio discloses that each node is designated a primary or secondary node with respect to a function that needs to be

performed and if the primary fails the secondary node (backup) will take over without loss of service, refer to column 19 lines 60 to 67 and column 20 lines 1 to 20.

With respect to - *employing said network message servicer to send at least one cluster message to said at least one computer in said cluster configuration by passing said at least one alternate network address for said at least one computer in said cluster configuration along with said at least one cluster message to a network message servicer, said network message servicer routing said at least one cluster message to said at least one computer in said cluster configuration using said at least one alternate network address, when said reply to said at least one cluster message sent to said at least one computer in said cluster configuration using said primary network address is not received in a timely manner.*

Attanasio discloses primary and secondary nodes wherein the secondary node takes over for the primary and the user doesn't realize a loss of service because the user addresses messages to the gateway and the gateway routes the messages to the node which is currently handling the function or service, refer to column 19 lines 60 to 67 and column 20 lines 1 to 20.

56. With respect to claim 29 - *The method of claim 22 wherein the step of storing said network address information on said each computer in said cluster configuration comprises the step of*

With respect to - *storing a copy of said network address information on a first computer in said cluster configuration, said first computer updating said network address information with adapter information about said first computer;*

Attanasio discloses that each computer node in the cluster stores a copy of the message switch and routing table, refer to Figure 4 and column 10 lines 60 to 68 and column 11 lines 1 to 45 and column 15 lines 25 to 68 and column 16 lines 1 to 35.

With respect to - *said first computer sending a copy of updated network address information to each other computer in said cluster configuration;*

Attanasio discloses each computer maintaining a copy of the switch table and updating the table, refer to Figures 4 and 7 and column 3 lines 64 to 68 and column 4 lines 1 to 10 and column 19 lines 55 to 68 and column 20 lines 1 to 20.

With respect to - *said each other computer in said cluster configuration updating said network address information with adapter information about said each other computer in said cluster configuration;*

Attanasio discloses each computer node in the cluster maintains the message switch and routing function table, refer to Figures 4 and 7 and column 10 lines 60 to 68 and column 11 lines 1 to 45 and column 17 lines 15 to 68 and column 18 lines 1 to 50 and column 19 lines 55 to 68 and column 20 lines 1 to 20.

With respect to - *said each computer in said cluster configuration exchanging said updated network address information such that said each computer in said cluster configuration receives an identical copy of said updated network address information.*

Attanasio discloses each computer exchanging network information in order to horizontally expand and add new nodes, refer to Figure 4 and column 3 lines 60 to 68 and column 4 lines 1 to 10 and column 10 lines 60 to 68 and column 11 lines 1 to 45 and column 17 lines 15 to 68 and column 18 lines 1 to 50 and column 19 lines 55 to 68 and column 20 lines 1 to 20.

57. Claim 31 - *A method of communicating between computers in a cluster comprising the steps of:*

With respect to - *creating a cluster destination address table on said each computer in said cluster, said cluster destination address table including a cluster destination address table entry for said each computer in said cluster, said cluster destination address table entry including a primary network address and at least one alternate network address for said computer in said cluster corresponding to said cluster destination address table entry;*

Attanasio discloses creating a message switch and routing function table in a cluster configuration, refer to Figures 2 and 4 and 7 and column 10 lines 60 to 67 and column 11 lines 1 to 45.

With respect to - *storing said cluster destination address table on said each computer in said cluster; and*

Attanasio discloses storing network address information in the table for each computer, refer to Figures 2, 4, and 7 and column 15 lines 25 to 67 and column 16 lines 1 to 35.

With respect to - *employing said cluster destination address table in conjunction with a network message servicer for communicating between computers in said cluster without requiring an intervening dedicated local area network.*

Attanasio discloses that the address information is utilized by a network message server to route data across a network, refer to Figure 3C and 4 and column 9 lines 30 to 67 and column 10 and column 11 lines 1 to 45.

58. Claim 32 - *The method of claim 31 further comprising the steps of:*

With respect to - *adding routing information to said network message servicer for each computer connected to a plurality of routers in said cluster, said routing information identifying which router of said plurality of routers to employ in communicating between said each computer connected to said plurality of routers in said cluster.*

Attanasio discloses creating routing information for each computer and identifying the destination for each node, refer to Figures 1B and 1C and 4 and 7 and column 7

lines 55 to 67 and columns 8-10 and column 11 lines 1 to 45 and column 15 lines 25 to 68 and column 16 lines 1 to 30 and column 17 lines 18 to 68 and column 18 lines 1 to 45.

59. Claim 33 - *The method of claim 31 wherein the step of employing said cluster destination address table in conjunction with a network message servicer for communicating between computers in said cluster without requiring an intervening dedicated local area network comprises the steps of:*

With respect to - *retrieving at least one primary network address from at least one cluster destination address table entry corresponding to at least one computer in said cluster; and*

Attanasio discloses retrieving addresses from the message switch and routing table which correspond to computer node addresses in the cluster, refer to Figures 4 and 7 and column 10 lines 60 to 68 and column 11 lines 1 to 45 and column 15 lines 25 to 68 and columns 16 and 17 and column 18 lines 1 to 45.

With respect to - *employing said network message servicer to communicate with at least one computer in said cluster by passing said retrieved at least one primary network address for said at least one computer in said cluster along with at least one cluster message to said network message servicer, said network message servicer routing said at least one cluster message to said at least one computer in said using said retrieved at least one primary network address.*

Attanasio discloses a network message server which utilizes the addresses in the table and the routing function instructions to route the data between computer nodes in the cluster, refer to Figures 4 and 5 and 7 and column 10 lines 60 to 68 and columns 11 to 17 and column 18 lines 1 to 45.

60. With respect to claim 34 - *The method of claim 33 wherein the step of employing said network message servicer to communicate with at least one computer in said cluster comprises the step of passing said retrieved at least one primary network address for said at least one computer in said cluster along with at least one cluster message to a User Datagram Protocol, said User Datagram Protocol formatting said retrieved at least one primary network address for said at least one computer in said cluster and said at least one cluster message into at least one packet, said User Datagram Protocol passing said at least one packet to an Internet Protocol, said Internet Protocol routing said at least one packet to said at least one computer in said cluster.*

Attanasio discloses the use of the CDAT utilizing UDP and IP protocols to route messages to maintain the cluster, refer to Figures 2, 3, 4, and 5 and column 2 lines 1 to 11 and column 5 lines 10 to 30 and column 7 lines 14 to 37 and column 16 lines 15 to 30 and column 19 lines 60 to 67 and column 20 lines 1 to 20.

61. Claim 35 - *The method of claim 31 wherein the step of storing said cluster destination address table on said each computer in said cluster comprises the step of*

With respect to - *storing a copy of said cluster destination address table on a first computer in said cluster, said first computer updating said cluster destination address table with adapter information about said first computer;*

Attanasio discloses that each computer node in the cluster stores a copy of the message switch and routing table, refer to Figure 4 and column 10 lines 60 to 68 and column 11 lines 1 to 45 and column 15 lines 25 to 68 and column 16 lines 1 to 35.

With respect to - *said first computer sending a copy of an updated cluster destination address table to each other computer in said cluster;*

Attanasio discloses each computer maintaining a copy of the switch table and updating the table, refer to Figures 4 and 7 and column 3 lines 64 to 68 and column 4 lines 1 to 10 and column 19 lines 55 to 68 and column 20 lines 1 to 20.

With respect to - *said each other computer in said cluster updating said cluster destination address table with adapter information about said each other computer in said cluster;*

Attanasio discloses each computer node in the cluster maintains the message switch and routing function table, refer to Figures 4 and 7 and column 10 lines 60 to 68 and column 11 lines 1 to 45 and column 17 lines 15 to 68 and column 18 lines 1 to 50 and column 19 lines 55 to 68 and column 20 lines 1 to 20.

With respect to - *said each computer in said cluster exchanging said updated cluster destination address table such that said each computer in said cluster receives an identical copy of said updated cluster destination address table.*

Attanasio discloses each computer exchanging network information in order to horizontally expand and add new nodes, refer to Figure 4 and column 3 lines 60 to 68 and column 4 lines 1 to 10 and column 10 lines 60 to 68 and column 11 lines 1 to 45 and column 17 lines 15 to 68 and column 18 lines 1 to 50 and column 19 lines 55 to 68 and column 20 lines 1 to 20.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

II. Claims 30 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Attanasio et al. (US 5,371,852) hereinafter Attanasio and the knowledge and skill of the ordinary person in the art.

Attanasio discloses a method and apparatus for marking a cluster of computers appear as a single host on a network.

Detail claim analysis:

1. Claim 30 - *The method of claim 29 wherein the steps of:*

updating said network address information about said first computer comprises the step of updating said network address information with adapter type, maximum transmission unit, subnet mask, and class of service for said first computer; and

Attanasio discloses updating information in the table such as address and adapter but does not disclose expressly the specific data being updated such as maximum transmission unit, subnet mask, and class of service, refer to Figures 4 and 5 and column 3 lines 60 to 68 and column 4 lines 1 to 10 and column 10 lines 60 to 68 and columns 11 to 15 and column 16 lines 1 to 55 and column 19 lines 55 to 68 and column 20 lines 1 to 20.

updating said network address information about said each other computer in said cluster configuration comprises the step of updating said network address information with adapter type, maximum transmission unit, subnet mask, and class of service for each other computer in said cluster configuration.

Attanasio discloses updating information in the table such as address and adapter but does not disclose expressly the specific data being updated such as maximum transmission unit, subnet mask, and class of service, refer to Figures 4 and 5 and column 3 lines

60 to 68 and column 4 lines 1 to 10 and column 10 lines 60 to 68 and columns 11 to 15 and column 16 lines 1 to 55 and column 19 lines 55 to 68 and column 20 lines 1 to 20.

2. Claim 36 - *The method of claim 35 wherein the steps of:*

updating said cluster destination address table with adapter information about said first computer comprises the step of updating said cluster destination address table with adapter type, maximum transmission unit, subnet mask, and class of service for each said primary network address and said each at least one alternate network address for said first computer; and

Attanasio discloses updating information in the table such as address and adapter but does not disclose expressly the specific data being updated such as maximum transmission unit, subnet mask, and class of service, refer to Figures 4 and 5 and column 3 lines 60 to 68 and column 4 lines 1 to 10 and column 10 lines 60 to 68 and columns 11 to 15 and column 16 lines 1 to 55 and column 19 lines 55 to 68 and column 20 lines 1 to 20.

updating said cluster destination address table with adapter information about said each other computer in said cluster comprises the step of updating said cluster destination address table with adapter type, maximum transmission unit, subnet mask, and class of service for each said primary network address and said each at least one alternate network address for said each other computer in said cluster.

Attanasio discloses updating information in the table such as address and adapter but does not disclose expressly the specific data being updated such as maximum transmission unit, subnet mask, and class of service, refer to Figures 4 and 5 and column 3 lines 60 to 68 and column 4 lines 1 to 10 and column 10 lines 60 to 68 and columns 11 to 15 and column 16 lines 1 to 55 and column 19 lines 55 to 68 and column 20 lines 1 to 20.

Attanasio discloses a cluster system wherein the nodes inside the cluster system maintain a message switching and routing function table and a message server utilizes the information in the table to route messages utilizing the UDP/IP protocols to other cluster nodes and hosts outside the cluster boundary. Attanasio discloses that hosts outside the cluster view the cluster of computer nodes as one node and the gateway cluster routes the messages to either primary or secondary cluster nodes to maintain the cluster network in case failures occur. Attanasio discloses that each cluster maintains the port and subnet address and includes a routing function which details the router which will handle the message routing to the destination node.

Attanasio does not disclose expressly the details of the data in the function routing table such as maximum transmission unit, subnet mask, and class of service, claims 30 and 36.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Attanasio with the knowledge and skill of the ordinary person in the art to obtain the invention as specified in claims 30 and 36 above.

The suggestion/motivation for doing so would have been that Attanasio discloses maintaining the tables and utilizing UDP/IP protocols which includes parameters such as class of service and maximum transmission unit and furthermore Attanasio discloses the use of a routing function which would have included these parameters to complete the information routing database.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. Krause (US 6,047,323) discloses a creation and migration of distributed streams in clusters of networked computers.

2. Bernabeu-Auban et al. (US 5,805,572) discloses a single-system image network subsystem in a clustered system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Pezzlo whose telephone number is (703) 306-5420. The examiner can normally be reached on Monday to Friday from 8:30 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou, can be reached on (703) 305-4744. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

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or faxed to:

(703) 872-9314

For informal or draft communications, please label "PROPOSED" or "DRAFT"

Hand delivered responses should be brought to:

Receptionist (Sixth floor)

Crystal Park 2

2121 Crystal Drive

Arlington, VA.

John Pezzlo

15 February 2002

HASSAN KIZOU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600